

REMARKS

The present invention relates to a resin composition for a toner.

In the Office Action of September 6, 2007, it was indicated in the Office Action Summary that claims 1 - 25 were rejected, Applicant's claim for priority under 35 U.S.C. 119 and receipt of the certified copies were acknowledged, and the Examiner noted the citation of references on Form PTO-892. Furthermore, the Examiner indicated acknowledgement of Information Disclosure Statements (IDS) of 05/22/2007, 08/25/2005, and 01/25/2005, but a handwritten insert indicated "(no 1449 provided by Applicant)". However, the Examiner did attach two acknowledged sheets of Form PTO/SB/08 A & B, one with an OIPE Date Stamp showing a filing date of May 22, 2007, and the second corresponding to the Form PTO/SB/08 A & B submitted with an IDS filed on April 26, 2005. With respect to the IDS submitted August 25, 2005, Applicant noted therein that copies of the documents cited in the IPRP submitted therewith had already been submitted with the IDS filed April 26, 2005. Lastly, according to Applicant's file, it does not appear that an IDS was filed on January 25, 2005. Therefore, it appears that the Examiner has considered all art submitted and listed by Applicant on Forms PTO/SB/08 A & B; if there is any question about this, the Examiner is invited to contact the undersigned attorney at the local Washington D.C., telephone number indicated below.

The Examiner also noted at pages 2 and 4 of the Detailed Action that a machine translation of JP '146 was not available, and that the Examiner was apparently awaiting a full translation. Applicant has now obtained a full translation of JP '146, and a copy is submitted herewith for the Examiner's information.

Furthermore, it is noted that at page 3 of the Detailed Action, it was asserted that the term “when” in claims 7 - 9 was an “optional phrase” that does not represent limitations, and the claims were therefore rejected.

Herein, claim 8 has been incorporated into independent claim 1, and hence amended claims 1, 7, and 9 include the term “when” in connection with defining characteristics of the resin composition. The term “when” as used in these claims never makes the characteristic “optional”, and such an interpretation of the claims is contrary to reason and logic. The term “when” is rather, a character condition that is required to be satisfied to fall within the scope of the claim. The term “when” in conjunction with the subsequent recitation in each of claims 1, 7, and 9 defines a characteristic of the claimed invention in terms that can be checked to determine whether a given composition is within the scope of the claim. For example, in amended claim 1, the slope K of the relaxation modulus curve expresses an elastic behavior of a substance, and if it is closer to 0, it means the property is closer to rubber elasticity. That the slope K is -27 or higher in the relaxation modulus curve means the network structure is formed in the resin composition for a toner of the invention, and it means that the non-crystalline components in the crystalline polymer with a high melting point and non-crystalline polyester are intertwined around the crystalline components evenly dispersed and forming the physical crosslinking structure, and thus provide the rubber-like property. This is explained in detail in the present specification on page 13, lines 17 - 28.

Turning to the prior art rejections, claims 1 - 2, 5 - 11, 19 - 20, and 22 were rejected under 35 U.S.C. § 102(b) based on JP 56-065146 (JP ‘146); claims 1, 4, 10 - 11, 14 - 19, and 22 - 25 were rejected under 35 U.S.C. 103(a) based on JP ‘146 in view of U.S. 2004/0185355 (“Sato

et al”), and claims 1, 12 - 13, and 21 were rejected under 35 U.S.C. § 103(a) based on JP ‘146 in view of U.S. 2003/0008225 (“Emura et al”).

The amendments and how they respond to the objections and rejections set forth in the Office Action are explained below in detail.

In the present Amendment, the specification has been amended to correct inadvertent typographical errors. Namely, the amendments to the specification change “stain” to “strain” and to change “hard wear” to “hardware”.

Further, claim 1 has been amended to recite a melting point of 187 to 280 °C and to incorporate the subject matter of claim 8. Support for the amendment can be found in the specification, for example, on page 16, lines 8-16, and in Example 5.

Claim 8 has been canceled.

No new matter has been added. Entry of the Amendment is respectfully submitted to be proper. Upon entry of the Amendment, claims 1 - 7 and 9 - 25 will be all the claims pending in the application.

Novelty and Non-obviousness of the Claims

One concept of the present invention is that in the resin composition for a toner of the invention, the crystal components of the crystalline polymer with a high melting point form a physical crosslinking structure in the non-crystalline polyester, and, on the other hand, the non-crystalline components in the crystalline polymer with a high melting point and the non-crystalline polyester are intertwined to form a kind of network structure, and such network structure formation suppresses the decrease of the viscosity at a high temperature, suppresses deterioration of the low temperature fixation property and storage stability, and draws good

offset resistance. Formation of such network structure exhibits excellent effects, which cannot be achieved simply by mixing a plurality of resins.

By measuring the slope K of the relaxation modulus curve, it can be confirmed that a "network structure" is formed in the resin composition. The resin composition for a toner of the invention which has -27 or smaller slope K of the relaxation modulus curve provides a toner excellent in low temperature fixation property, high temperature offset resistance, and blocking resistance, and which is capable of providing good coloration. If the slope K of the relaxation modulus curve is less than -27, no such network structure as described above is formed, and no such effects can be obtained (please see page 13, line 5 to page 14, line 1 of the specification).

Response to Rejection Under 35 U.S.C. §102

JP '146 discloses a toner for electrophotography comprising a binder composed of 50 to 95% by weight of a non-crystalline polyester with a glass transition temperature of 40° or higher, a softening point of 80 to 150°C and a number average molecular weight 1,000 to 10,000, and 5 to 50% by weight of crystalline polyester with a glass transition temperature 0°C or higher, a melting point of 110 to 220°C, and a number average molecular weight of 8,000 to 40,000. The toner is improved in its fine pulverization property, blocking resistance, and the property of separation from a heating roller by use of two types of polyesters as a binder.

However JP '146 never discloses a formulation of a "network structure". JP '146 only discloses simply mixing and using two types of polyesters. There is no disclosure that satisfies the low temperature fixation property, high temperature offset resistance, and storage stability and it is difficult to provide sufficient durability and image reproducibility therewith.

The Examiner's attention is directed to the Examples set forth in JP '146. Non-crystalline polyesters "A" and crystalline polyesters "B" are mixed in the Examples. Among them, the non-crystalline polyester A-3 has a highest softing point of 128°C. Crystalline polyester B-3 has a highest melting point, 160°C. Thus, amended claim 1 clearly does not read on the resin composition of the mixture of A-3 and B-3 (Example 3).

The Examiner's attention is directed to Comparative Examples 1 and 2 of the present application. In Comparative Examples 1 and 2, the melting points of the crystalline polymer are 152°C and 153°C, which are close to the melting points in the Examples of JP '146. However, the evaluation of the toner of Comparative Examples 1 and 2 are different.

On the other hand, JP '146 discloses crystalline polyester B-7 in Table 3, which has a melting point of 265°C. However, the Examiner's attention is directed to Comparative Example 7 in Table 4 of JP '146, which indicates that it is "impossible of mixing and melting". Accordingly, JP '146 does not disclose the present invention.

Response to the Rejection Under 35 U.S.C. §103

Referring to the first paragraph on page 6 of the Office Action, it was asserted that it would have been obvious to any person of ordinary skill in the art to have constructed the toner of JP '146 with high melting points that were made using the resins of Sato et al. However, as described above, JP '146 never discloses the resin composition thereof as having a "network structure". Sato et al merely teaches a toner composition consisting of an H form polyester, an L form polyester, and a crystalline polyester. Applicant respectfully submits that a person skilled in the art could not expect that a resin composition that has a "network structure" would be achieved based on JP '146 in view of Sato et al.


Referring to second paragraph on page 7 of the Office Action, it was asserted that it would have been obvious to a person of ordinary skill in the art to have used the resins of Emura et al as high melting point polyesters in the toner of JP '146. However, as described above, JP '146 never disclose the resin composition thereof having a "network structure". Emura et al only disclose a toner including a binder resin, which is comprised of two polyesters, one linear and one crosslinked. Applicant respectfully submits that a person skilled in the art could not expect the resin composition that has a "network structure" would be achieved based on the teachings of JP '146 and Emura et al.

In view of the above, reconsideration and allowance of pending claims 1 - 7 and 9 - 25 of this application are now believed to be in order, and such actions are hereby earnestly solicited.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the local Washington, D.C. telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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